

CLAIMS

1. Crown (1) for a timepiece including a housing (28) of axis X1 inside which are arranged in particular:
 - a pipe (11) including, in the region of a first end, means (33) for securing a winding stem,
 - 5 at least one first element (4), able to be deformed resiliently, cooperating in rotation about said axis X1, in at least a first direction of rotation, with a rigid element (15),
as long as the rotational couple transmitted by one of said elements to the other is less than a predefined value beyond which said first deformable element (4) is
 - 10 capable of being deformed to disconnect the rotational cooperation between said first element and said rigid element (15), characterized in that said resiliently deformable element is secured to said pipe (11) whatever the value of the rotational couple, whereas said rigid element (15) is fixed in relation to the crown (1).
2. Crown according to claim 1, characterized in that said deformable element is a spring (4) including a central base (5) from which extend at least one and preferably at least two arms (6) that can be deformed resiliently, said rigid element (15) including a plurality of notches (16) arranged opposite said deformable arms (6) and for cooperating with respective surface regions (35) of said deformable arms.
3. Crown according to claim 2, characterized in that each of said arms (6) includes two successive portions, a first short portion (7) extending from said central base (5) along a substantially radial direction before exhibiting an elbow (8) at substantially right angles extended by the second, substantially rectilinear, portion (9), carrying said corresponding surface region (35) on at least one part of the external edge thereof.
- 25 4. Crown according to claim 3, characterized in that each one of said second portions (9) of the arms (6) has one free threaded end (38) ending in a rounded portion.
5. Crown according to claim 4, characterized in that said rigid element is a ring (15) arranged opposite said spring (4) and the internal periphery of which includes alternating first short portions (37) each oriented in a substantially radial direction, forming said notches (16), and second portions (36) longer than said first portions (37) and each oriented in a substantially tangential direction in relation to said axis X1, said second portions (36) being capable of cooperating with said surface regions (35) of the arms (6).

direction of said corresponding first portion (7), said free ends (38) of the arms (6) cooperate with said notches (16) such that a movement of rotation of said rigid element causes a movement of rotation of said spring (4) in the same direction, whatever the value of the transmitted rotational couple.

5 7. Crown according to any of claims 2 to 6, characterized in that said spring (4) is arranged in the region of the second end of said pipe (11) opposite to said first end.

10 8. Crown according to claim 7, characterized in that said pipe (11) has, at said second end, a projecting portion (14) substantially aligned with said axis X1 and whose periphery has a non-circular shape, said central base (5) of said spring (4) having a hole (10) substantially aligned with said axis X1 and whose shape is adapted to cooperate with said projecting portion (14) in a movement of rotation.

15 9. Crown according to claim 8, characterized in that said periphery of said projecting portion (14) has a polygonal shape, preferably a square shape.

10 10. Crown according to any of claims 5 to 9, characterized in that there is provided a support element (2) secured inside said housing (28) of the crown (1) and of substantially complementary shape to the shape of the latter, said deformable (4) and rigid (15) elements and said pipe (11) being arranged inside said support element (2).

20 11. Crown according to claim 10, characterized in that said rigid element (15) is secured to said support element (2), whereas said pipe (11) includes a tube (12) and a head (13) of substantially flat annular shape, whose diameter is greater than the diameter of said tube (12), and arranged in the region of said second end of the pipe (11), an additional annular element (17) being secured to said support element (2) 25 abutting against said head (13) of the pipe to hold the latter along the direction of axis X1 while allowing a relative movement of rotation of said two elements in relation to axis X1.

12. Crown according to any of the preceding claims, characterized in that said rigid element (15) is made of a metal or ceramic material.

30 13. Crown according to claim 12, characterized in that said deformable (4) and rigid (15) elements have respective hardnesses of similar values.

14. Crown according to any of the preceding claims, characterized in that a plurality of identical deformable elements (4) are stacked so as to cooperate with said rigid element (15) in order to increase said predefined rotational couple value.

35 15. Crown according to claim 8, characterized in that said projecting portion (14) has a thickness at least equal to double the thickness of said deformable element (4), a second stage including additional deformable (4) and rigid (15) elements being

arranged in superposition in relation to the first stage in the opposite direction, i.e. to have a similar function to the function of said first stage in the opposite direction of rotation, the crown (1) having at least two axial positions in relation to said winding stem, said first stage operating in a first axial position of the crown whereas said

5 second stage operates in the second axial position.

16. Timepiece including a crown (1) according to any of the preceding claims.